

Engineering Management
Field Project

Enterprise Feedback Survey Tool

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Executive Summary

Many corporations in the United States are continuously expanding and improving their ability to gather customer feedback and incorporate the feedback into their business processes.

It's fairly easy to obtain reliable feedback within small, specialized teams with clearly defined roles and objectives. It becomes more difficult in larger IT organizations or those with complex relationships to gain such essential information needed to continue improving and prosper. That brings the need for IT organizations to explore comprehensive feedback solutions to provide accurate results.

Information Technology (IT) Feedback project lifecycle must consist of how to designing the Feedback Survey web tool, assign data collection responsibilities to groups that are in the best position to collect the information, specify reporting mechanisms and templates, and define policies such as system access.

This paper will explore issues in effective feedback system, discuss the enormous benefits of having the right feedback solution in place, and illustrates how the Feedback Survey system enables the implementation of a comprehensive Enterprise Feedback Survey program for IT organizations, utilizing the Internet as a way of delivery.

To determine the response of certain specialists within IT organization, it was decided to conduct a pilot survey to selective Network Operations team members. This is just a pilot survey that had not been conducted prior to the creation of the Feedback Survey system in the paper. Details of this pilot survey are discussed in this paper.

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Chapter One - Introduction

Information Technology (IT) organizations are continuously expanding and improving their ability to gather customer's feedback and integrate the feedback into their business processes. These processes must be continuously monitored and optimized to suit changing business conditions. The evaluation of many business processes is important and Feedback System is ideally suited for measuring these processes.

An example of a business process is the operation of Information Technology within a company, which is designed to ensure the satisfaction of its main customer Network Operations. IT receives product development requests through normal company project process and acts upon these requests. One way of measuring the performance of the Information Technology is by surveying customers about the quality of the service received. Performance measurement in this case inherently involves feedback management. Feedback System is also important to various other kinds of business processes including Market research, Employee Satisfaction, Performance Reviews and new Product Launch

The accuracy of such feedback is significantly improved when the Feedback System platform not only facilitates the creation of the right instruments but also provides tools to manage the entire Feedback System lifecycle. IT Web-based forms delivered over the Internet are becoming the preferred means of feedback data collection and are steadily replacing traditional mechanisms such as word of mouth, paper or phone call surveys.

One of the most important new capabilities of the Internet relative to previous mass communication technologies is its multi direction communications. Through the Internet, not only can organizations communicate to the audiences at a low cost, but also for the first time in human history, individuals can make their personal thoughts, reactions and opinion easily accessible to many members of the community within the organization. Perhaps the best-known application of online feedback mechanisms to date has been their use as a technology for building trust in electronic markets (Kollock 1999). The relationship between the company and the customer tends to improve because the company is willing to listen to customers' issues, concerns and they are willing to take action and improve their processes and the way they do business. This behavior tends to help both parties by improving customer retention, recognizing problems, allocating resources and depending on the situation, coach or reward employees.

Throughout this section, the focus of the literature review revolves around many aspects of feedback: emphasis on the constructive aspect of feedback, customer-focused features as part of any comprehensive feedback system, effect of feedback on individual performance. Other aspects discussed by many authors such as impact of feedback on individual's learning and performance, relationship between self-esteem and negative feedback and finally how people respond upon receiving a feedback.

Chapter Two - Literature Review

What is Feedback System?

A feedback can be obtained through survey research tool such as web-based data collection forms which collects, analyzes, and reports about business processes. A feedback collection project is itself a process and the different phases of its lifecycle are Design, Implementation, Data Collection, and Analysis and Reporting. Enterprise Feedback System is the core of managing multiple Feedback Collection Projects covering all relevant business processes within group or an organization.

The benefits of Enterprise Feedback System include competitive advantage due to improved market intelligence capabilities, utilization of best practices for performance measurement among all the business operations within the group, more efficient use of resources and ability to obtain a combined view of the performance of all business processes within the group. (Marcus and Curt Coffman 1999).

Importance and Features of Feedback

The literature has exposed a lot of awareness on the making and recording of feedback in the framework of customer service environments in many companies with the focus on the department level.

Overall, receiving complaints and feedback is very important to each organization. It allows each department within the organization to address issues and concerns, and it provides the chance for each organization to consider the quality of services and provide the change to improve learning by providing training as needed to those who need it. According to research, a feedback system is an important tool as it gives individuals the opportunity to raise concerns and voice their highly important comments in regards to

services delivered or not delivered. Feedback systems should focus on the constructive aspect and should not be a defensive response to a situation or a case. Rather it should point to deficiencies to improve the service. The task becomes extremely difficult as some companies tend to perceive feedback as negative vs. constructive feedback. Receiving and handling customer complaint and feedback processes are measured as positive opportunities to promote customer satisfaction and to identify any existing issues in order to provide effective service delivery (Shrauger, 1986).

Feedback systems may include number of customer oriented features that are easily accessible and noticeable to users. It shows how, where, when and to whom complaints can be made. These systems should be simple to operate with resources clearly allocated. Other features should be included such as quickness as it should offer prompt action and speedy resolution. Feedback System should be objective and confidential. It should record complaints at all stages and levels, including actions taken and complainant's response.

Effect of feedback on people and performance

Many experiments have examined the effect of feedback on performance. For example, Emmert (1978) suggested that both morale and performance increased after conducting feedback experimental design. Other studies by Nadler (1980) have determined the impact of feedback system on groups is very effective as long as the overall goal is objective. Becker (1978) also found feedback has positive impact on individuals.

Many articles have been written about feedback and its role in knowledge and how feedback has impact on skill achievement. Most of these studies have conducted

experimental tests examining many features of feedback. Despite the fact that there has been plenty of research on Feedback mechanisms and their impact on people, yet relating feedback to learning is not so clear and with few general conclusions. Most of the research that has been performed on feedback uses descriptors such as inconsistent, conflicting, and variable to describe the body of feedback findings (Azevedo & Bernard, 1995; Kluger & DeNisi). Many years later the same situation still applies (Baron, 1993).

Effect of feedback on learning and performance

Feedback has been widely cited as an important facilitator of learning and performance (Bandura, 1991; Ilgen, Fisher, & Taylor, 1979), but other studies have reported feedback as having either no effect or low effects on learning. As an example “no facilitative effects of feedback on learning” Bangert-Drowns (1991). Some studies demonstrate negative effects of feedback on learning. Other features of feedback have an impact on learning when providing grades and scores demonstrating the student’s standing relative to peers (Butler, 1987). Interrupting a student who is engaged in problem solving with feedback from an external source tend slow down learning (Corno & Snow, 1986). According to this review, feedback could have some negative effects on learning.

Effect of feedback on Top and Low performers

With respect to other findings, shows that people will seek feedback as long as there is higher level of uncertainty in terms of performance (Ashford & Cummings, 1983; March & Simon, 1958), Even though it is not easy to find signs of uncertainty in advance. A main factor that influences perceptions of uncertainty is an individual’s performance history. Top performers whom have mastered their job and have great record of good performance

may believe there is no need for any feedback. On the other hand, employees who have low level of performances may perceive greater uncertainty and it would be very helpful for them to know how they did and whether feedback contributing to their improving. Many with poor performance would always welcome less negative feedback and much rather to get positive feedback in order to correct their mistakes and improve their performance. In fact, employees with low performance will work on improving their performance post negative feedback; otherwise, it may result in disciplinary action and may result in termination (Wood & Locke, 1990).

Other views may point to less feedback due to strong performance. A laboratory study found that when participants in the study faced a drop in performance, it decreased the extent to which individuals sought information from others, a type of information equivalent to negative performance feedback (Baron, 1993). This may lead to believe that individuals with success history are less likely to get feedback if compared with those with low performance past. Most of these individuals may experience a drop in performance every now and then, but they are certain they are able to turn things around within short period.

Pursing feedback may not necessarily be tied to other aspects of performance and the need for information on certain individuals. Some individuals may measure feedback for its perceived harm–benefit prospect for self. (Ashford & Cummings, 1983). For some seeking to identify their own strength or weakness may misinterpreted this, as they might believe this is one way to prove their lacking ability. If preserving one's self-image is very important to people, individuals will try to avoid negative feedback, to avoid finding out their poor performance.

Self-consistency and Self-affirmation theories

While there are personal characteristics that are associated with negative feedback avoidance such as anxiety, research stresses self-esteem as a critical variable. Self-esteem refers to one's appraisal of oneself as worthy and/or efficacious (McClellan, & Knight, 1996).

Some theories have discussed dealing with the relationship between self-esteem and negative feedback orientation. One of these theories is self-consistency theory in which it suggests that people are motivated to maintain certain attitudes about themselves. According to the self-consistency theory; individuals favor feedback that confirms their self-image. Therefore, people seek less negative feedback normally have low opinion of themselves than those who hold themselves in high regard (Shrauger, 1986).

Other theories such as self-affirmation theory discuss how people prefer to see their positive side and avoid any information that brings out their low self-esteem side. Both of these theories suggest that people with high self-esteem prefer positive feedback than negative feedback. However, when it comes to people with low self-esteem, their predictions tend to change. The self-consistency theory suggests that low self-esteem people can be more accepting of negative feedback over positive feedback. Self-affirmation theory maintains that low self-esteem people avoid negative feedback when compared to high self-esteem people. This confirms the self-affirmation theory, indicating that while a self-enhancement theory bias makes people generally more inclined to obtain positive feedback, low self-esteem people also try to avoid negative feedback (Blaine & Crocker, 1993; Spencer, Josephs, & Steele, 1993).

Seeking negative feedback might be interpreted negatively. Other cases Feedback can be interpreted positively. It may be seen as lack of skills or as a sign of motivation to

improve. People that regard their image to be very important to them may limit whom to seek negative feedback from. (Morrison & Bies, 1991). This may result in less people seeking feedback.

Getting Feedback from knowledgeable Source

On normal situations, people are more likely to seek feedback from individuals they trust as far as their ability to provide fair feedback as long as they are being knowledgeable of matter and trustworthy. One would really want to avoid feedback from a person who is unfair or is motivated by considerations other than the truth. It really makes no sense to get feedback from individuals who do not know how to evaluate performance correctly and to give useful feedback (Wood & Locke, 1990).

Impact of Feedback on public image

Many individuals perceive public image as important aspect and it is very important to them whom to request feedback from. Public image concerns will motivate individuals to seek feedback from individuals with whom they are in good terms with as they tend to more likely to interpret the feedback seeking act favorably. Concerns about public image may also result people to consider other sources before asking for feedback especially those whom are concerned about maintaining a good image. If they believe that feedback request will damage their public image, they will be more likely to ask from someone with less reward power (Morrison & Bies, 1991).

These type of concerns maybe a factor to influence the degree to which those individuals seeking feedback appear to other people. One factor is self monitoring tool, which refers to the level to which individuals are concerned about the public image of their behavior (Snyder, 1975). As a result people may refrain from seeking feedback

despite its prospect of correcting their behavior, particularly from people whom they don't have strong relationship.

Ways people react upon receiving feedback

There are three different ways people react upon receiving feedback. **Accepting the message** and making an effort to change within and improve self and or processes. One other way is by **ignoring the message** while insisting on the current way of doing business and refusing to make any changes. Or the third final way by **requesting additional feedback** while continuing on the current way of doing business (cf. Kluger & DeNisi, 1996).

Let's discuss on how people react once receive the first type of feedback. How can we find out whether individuals accepting a feedback message react to it and make changes or just ignore it? Goal theory may have some answers to our question (Locke & Latham, 1990). According to the support of extensive observed work, goal theory suggests that when people learn of inconsistency between their goals and performance such as negative feedback and when they are certain of their ability to be successful is low, they are more likely to lower their obligation to their duty or the goal. Once people consider their role or task less important to justify their effort, they tend to abandon their task as they feel abandoning their task will change their role. If self-esteem and self-efficiency are both low, people tend to behave in defensive mode by the abandoning their task in order to avoid any feedback. Changing the goal would be another way of abandoning their task. That is not considered defensive rather change of interest or priorities (Azevedo & Bernard 1995).

Once people accept the feedback and decide to change the way of doing things, how are they likely to change? Some people choose the working harder approach by spending more time and effort on the task; other people choose the working smarter approach (Wood & Locke, 1990). The content of feedback is how people choose to go one way or another. People are more likely to work smarter than work harder when the feedback provides specific details as to what strategies need to be changed (Kluger & DeNisi, 1996). If that information was not provided, people are more likely work harder by putting more effort in the task.

Rejecting feedback leads to continue with the current way of doing business without the motive to improve. There are two types of rejections. Rejection may be product a narrow focus such as the expertise and the credibility of the source. When the source is neither credible nor liked, individuals may automatically ignore the message. On the other hand, rejection may be the result of an objective analysis of the content of the message leading to the conclusion that the message is untrue. In the process of rejecting the message and persisting with the current course of action, people may also engage attempts to blame others (Taylor , 1988). In other cases, disagreeing with the source in which may not necessarily be defensive in the case of incorrect feedback provided by the source. This is the case often when the source lacks sufficient knowledge of the situation.

The another way people react upon receiving feedback are those whom are uncertain about the validity of feedback. In this case, they neither accept nor reject it. They normally seek additional information and end up delaying reaching the conclusion. To better understand how the performance data were gathered and what standards were applied to arrive at that feedback, they tend to gather additional information from the

same source. In some cases they are unclear as to whether the feedback source is providing solid feedback or whether he can be trusted to give an honest evaluation. In these cases, obtaining feedback from other sources may be critical (Locke, 1990).

Now that we know the different ways in which people respond to feedback, it would be helpful to identify the most appropriate response. If one were to assume that the feedback message is complete and valid, then it would be wise to accept the message and make changes according to their suggestions. However, this assumption is often not made. It is vital for feedback recipients to check the legitimacy of the feedback message. It is mostly vital how recipients handle situations in which the feedback message creates doubts and confusion. Do they reach a conclusion based on questionable data?

Sometimes additional feedback reaches from one or many sources. Some mismatches occur when people accept the message and act on it when the message is incorrect. Others occur when people dismiss the message and persist on the current course of action when the critical message is valid. When the facts are vague because the feedback message point to new leads but does not offer decisive proof, it is suggested that the best response is to neither dismiss nor accept the message.

Chapter 3 – Development of the Tool

Feedback Survey System for IT Organizations

A Feedback Survey System manages multiple Feedback Collection projects. The program must have well defined long-term goals. The goal of a Feedback Survey program is to monitor the IT organization's relationships with their customers. This monitoring in turn will help in analyzing the data and understanding the organization's relation with the customer. The IT organization may need to know about the customers' purchasing patterns and the categories of services does customer prefers. Defining real goals will help the organization in designing a flexible Feedback Survey System that is an essential part of overall business processes, and will contribute considerably to the organization's success.

Determine Information Needs

Information Technology (IT) organizations perform many tasks. Task performance may be distributed among multiple departments and people. Each broad business process must have its own distinct information needs. The first step to setting up an effective strategy for Feedback Survey is to understand the structure of information needed to complete a feedback. Information collection and management is a time consuming process, and therefore it is best to collect it in a well-organized manner. If multiple departments need the same information, the information must be gathered only once and spread appropriately. Once the structure of informational needs is determined, the logistics of information collection must be understood. Parameters must be defined such the frequency data must be collected and where to be collected from.

In order to identify and verify the root causes of problems and utilize the Feedback Survey tool properly, we must first understand and study the project life cycle phases within the Development Process (DP) used by many IT organizations.

Development Process (DP)

The following project life cycle is used by XYZ corporations and these phases are from the XYZ internal Website.

Development Process consists of the following phases.

Define encompasses processes that define the strategic intent and concepts that are aligned with the considered goal and it consists of four steps.

- **Intent** facilitates definition of strategic plans needed to guide the enterprise.
- **Ideation** facilitates definition of concepts and aligned with the strategic intent and Domain and Portfolio Evolution Plans.
- **Feasibility** facilitates determination of approach, critical functional impacts, and overall feasibility of concepts.
- **Estimation** facilitates estimation of level of effort (LOE) for prioritization and investment decisions.

Discover refers to the processes that discover functional and system requirements in support of the business requirements.

Discover phase encompasses three steps.

- **Project Planning** Includes tailoring of the process, creation of the project schedule, resource assignment, and creation of the IT Project Management Plan.
- **FRM** facilitates identification of functional requirements, supporting business requirements.

- **SRM (Conditional)** facilitates identification of system requirements, supporting functional requirements. This step is **Conditional** if the project has single application impact, or multiple application impact with no code impacted interfaces between them.

Design refers to the processes that constitute definition of physical design specifications, which will serve as the basis for development efforts.

Design phase encompasses two steps

- **Design Specification** facilitates creation of inter and intra application physical design specification and the physical information (database) design.
- **Contract** provides an integrated view of the project encompassing scope, cost and schedule for investment decisions.

Develop refers to the processes that develop and test application systems (software) according to the specifications detailed in the Design phase. **Refer to Figure 1**

Develop phase encompasses two steps:

- **Application Code and Testing** refers to creation and testing of software (application) according to design specifications
- **Service Build & Test** is the sub-process that manages the effective use of new and changed services throughout the organization by planning, designing, building and testing the hardware and software components prior to release to the live environment

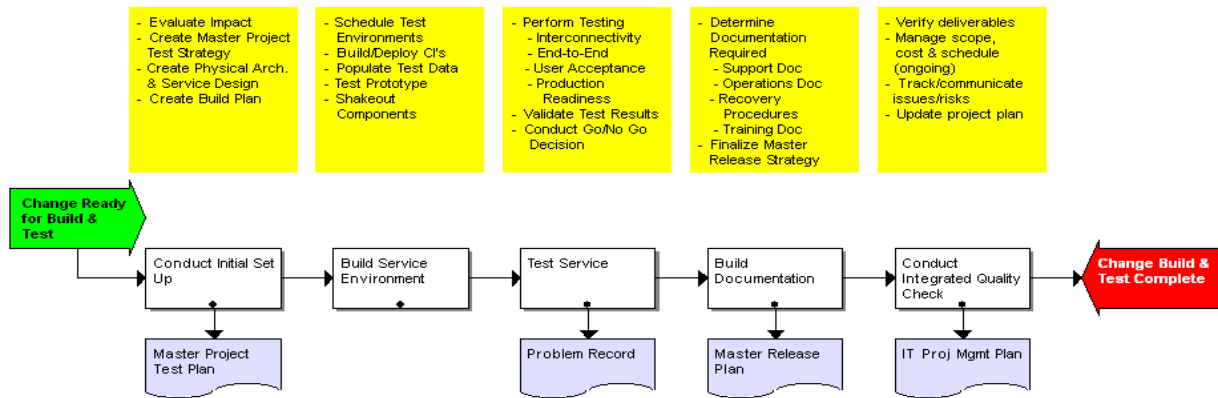


Figure 1

Deploy refers to processes for planning and implementing the activities required to deploy projects from the development to production environment.

Deploy phase encompasses two steps:

- **Release to Production** is the sub-process that manages the effective use of new and changed services throughout the organization by planning and releasing the hardware and software components to the live environment to ensure the deployment of compatible, licensed and appropriate release and to minimize the use of release that do not contribute to business objectives.

Production Warranty refers to maintenance support during an agreed-upon timeframe following production migration.

Response Analysis and Reporting

After analyzing the Development Process, the most logical phase for error to occur is the Develop phase. The best approach to validate this prediction is to implement a Feedback Survey system and collect valid data. Upon collecting the response data, statistical tool is needed to analyze specific feedback project, depending on the level of

data analysis required. For most reports, the ability to generate various types of summary reports provides the insight into the importance of the results. The integration of such data analysis tools within the Feedback Survey System platform provides rapid data analysis capabilities for all users within the organization. Clifton, Donald, Ph.D., and Tom Rath (2004). In cases where further analysis is required, the ability to export of data into Microsoft packages such as Excel [2].

Generating and distribution reports are two of the most time consuming steps of the feedback process. Multiple reports with different levels of detail may need to be distributed to different audiences. For example, group manager may need access to in depth type of reports while the CEO of the company may only require high-level quarterly data. Creating these types of reports may become difficult if the reporting tool is external to the system. Very important time may be lost in data export and preparation before meaningful reports can be generated. Reporting code is shown in **Appendix B**. The Feedback Survey System tool allows the creation of multiple Report Definitions for the same survey. Web-based reports can be specified to be real-time or generated and published according to demand.

Design the Feedback tool Structure

An effective Feedback Survey tool must define a well-designed process and workflow for ongoing projects. The process must create a design group and assign data collection responsibilities to groups that are in the best position to collect the information, specify reporting mechanisms and templates, and define policies such as system access. Once the overall Feedback Program is designed, individual feedback collection campaigns are conducted on an ongoing basis.

The next few sections discuss the major tasks in greater detail and address the features within the Feedback Survey system that make it easy to achieve the tasks.

Determine the Issue

For each project, the data collection goals must be clearly defined. This is a repetitive process that identifies what issues to investigate, and what questions to ask, and may involve conducting focus group studies and test surveys. Designing feedback systems is a process that can be improved over time.

Structure Design

The online Feedback Survey tool allows for convenient structuring of projects through its data collections capabilities. Once the broad issues are determined, the structure of the project must be designed. The project may require the creation of multiple surveys that could be targeted at different population samples. Addison-Wesley Professional (2005).

Determine Target Customers

This task identifies the profile of individuals who will be targeted for obtaining responses from. This is one of the most important steps in the planning stage because it will determine the nature and quality of information that will be gathered. The outcome of this step will also determine the sampling techniques that will be used to create the short list of survey recipients. Internal databases provided with the online Feedback Survey tool makes it easy to select appropriate population segments.

Instrument Design and Testing

The feedback form and the question elements within the form must be carefully constructed. Effective feedback forms adhere to good survey design guidelines and must be engaging to encourage users to want to participate. It is a good idea to test the

feedback form at least once with small target audience. Testing allows the enhancement of form design and can make the difference between an effective form and wasted effort.

Implementation Tasks

Once the survey tool design is complete, population samples must be finalized. The feedback form is then published to a location that is accessible to the target population for the appropriate duration. Communications must be used to alert the target population about the status of the survey. Such communications can include availability notifications, reminder messages and thank you notes. By the time target recipients receive communications about form availability, the feedback form must be made available to collect data. Similarly, once the necessary data is collected, the form must be closed [1].

Reporting Results

Feedback Survey reporting system offers data analysis tools including statistical historic data for all questions and responses, the ability to compare questions and cross-reference with other reports. Finally, the ability to export of data into Microsoft packages such as Excel. After the required amount of raw data is collected, the data must be organized and analyzed. Shown in **Appendix A** the HTML code gathering the result for each survey. Standard statistical analysis techniques shed light on various behavioral patterns and help in recommending courses of action that can influence future behavior.

It is very important to take into considerations the type of technology prior to deploying the Feedback Survey System tool within IT Organizations in order to be most effective. Two areas need to be evaluated when choosing a Feedback Survey; these areas are Functional and technological considerations.

Functional Considerations

Feedback Methods

Core feedback methods deal with the important functions of creating and administering survey research instruments, data collection and analysis, and reporting. Core functional capabilities may be categorized into three areas. These presentation functions such as the ability to support different types of questions, controlling questionnaire page layout and customizing the appearance of the web pages. Behavioral functions such as the ability to check for login authorization prior to responding, routing to different question sets based on responses and real-time error checking to improve validity of responses. Response analysis functions such as the ability to generate statistical tables and different types of graphs, combine data across multiple input fields or questions for cross-tabulation and finally the ability to extract raw response data in industry standard formats for export to dedicated data-analysis tools. Hathaway, Patti. (2005).

Effective Communications Management

As soon as the new Feedback Survey System is ready to go, most new survey tools do not need to be newly designed. Most groups will be able to design their surveys with standard questions that can be reused occasionally. Another important function is the ability to create templates and store them as libraries, to allow copying whole or partial questionnaires easily. The reuse of reliable questions further reduces development time and speedup survey processes, if time is spent to test the questions before the templates are created. The relevance of responses is often lost in many feedback survey systems, due to the delay reaching the customer in time. Therefore, it is very important to speedup deployment capabilities to reach the target customer in timely manner [2].

Improved communications with the target population can increase the response rates and therefore help improve the validity of outcome. The same communication method may not be best possible for different types of audiences. In the case of an internal survey, it is commonly acceptable to send out periodic reminders internal employees as an example, but it may not be acceptable to send out more than one reminder to external customers. It is recommended to send out these reminders to external customers who have not completed the survey rather than sending mass reminder all recipients which may make the process less credible. Following the proper process will improve the outcome of the Feedback Survey System process. Larkin, T.J. and Sandar Larkin. (1994).

Development Support

Multiple stakeholders are needed to design different aspects of the tool for larger organizations. Focus groups tasked with designing survey instruments rely on teamwork and multiple discussions as far as design to able to arrive at the best possible solution. Thus, a tool must support collaboration among users to be able to support the overall Feedback Survey System [2].

Business Process Integration

Feedback Survey System is most effective when it is integrated with other business processes. This means that the Feedback Survey System Platform must work seamlessly with other entities within each organization. In the Internet era, the web delivery model is the preferred means of inter-process communication as it offers the greatest flexibility and ease of implementation. Comprehensive web-base Feedback Survey System should provide a powerful tool that integrates with back-end systems.

Technology Considerations

Ease of Deployment and Maintenance

In order to support an evolving Feedback Survey System, the tools that support the processes must themselves be built to scale and evolve as needed. One main focus of a tool that is used by multiple designers is the simplicity of deployment and maintenance. Using HTML to implement the Feedback Survey System makes maintenance easy.

A system built within the framework of standard technologies greatly facilitates support and ensures integration with other enterprise infrastructure systems. The new tool supports of industry standard protocols like XML, HTTP, and HTTPS makes it easy to integrate backend systems [3].

Centralized System Administration

System Administration in a multi-user environment is best performed in a centralized manner. This does not imply that IT resources or expertise is needed. Instead, centralized administration means that a single point of control must be established for administering policy-based management of system resources and system access. Project managers, who are in the best position to know which team members need access to various levels of data, can be set up as system administrators; they in turn set up and administer access policies. System administrators also load general data such as system level Address Books, and Library Templates that should not be modified by general end-user. **Appendix C** shows HTML administrating code.

Self-installed or Hosted Solution

Depending on the needs of the organization, either self installed application or a hosted application service may be appropriate. The self installed and administered

version is ideal for large organizations that need to have full control of the hardware, data, and administration functions.

The hosted solution is ideal for cases when the organization does not wish to commit any resources for hardware and software maintenance, and must ideally have the full power of the locally installed system available to it. In either case, if the organization desires to change its options later, it must be able to do so without loss of service continuity and transfer the entire dataset seamlessly [2].

Chapter Four - Conducting Actual Survey

To determine the response of the customer, it was decided to conduct a survey to selective Network Operations team within XYZ organization. This is just a pilot survey that had not been conducted prior to the creation of the Feedback Survey system in the paper. Details of creation, layout and method of the survey will be discussed in the following sections.

The first step in creating this pilot survey is to determine the information needed for the project and where to get that information. In looking through defects for most projects completed by Information Technology, it appears these issues tend to share some common similarities. This conclusion was as result of reviewing XYZ's internal ticketing system as well as meeting with the Network Operations management discussing project status. Meeting minutes (1) and (2) shown in **Appendix D**.

The most important questions common to this project are aimed to address the core functions of this project.

These main system requirements are as follow:

- The ability to configure the test and production environments with any gateways connected to IDEAS server.
- The ability for the configuration management system to provide full TL1 command support of network element for commands applicable to configuration management.
- The ability for the configuration management system to provide a graphical view of all network elements.

- The ability to select a node to open a secondary window displaying a graphical representation of the shelf
- The ability to assign a circuit ID to cross connect for all transmission levels when creating a circuit utilizing the ENT-CRS command.
- The ability for the configuration management system to remove a managed object from the circuit database when deleting a circuit using the DLT-CRS command.
- The ability for all development for the network switch to be in the NETeXPERT
- The ability for the alarms from the network element to report in fewer than 4 seconds to the user
- The ability for the commands to easily run with a minimum of steps (one to three steps maximum) required to "build" and execute the commands
- The ability for the command response time to be 2 seconds in order from sent to receive back
- The ability for the Shelf/Node View to represent the shelf for that specific equipment in that node
- The ability to support dynamic circuit changes.

Survey Method

The surveys were administered to several members of the Network Operations whom they directly deal with new software releases and part of User Acceptance Testing. The survey link for the project was emailed to these individuals upon project completion by the IT development team. For a more effective result, it is recommended to conduct several projects surveys upon completion, however due to time limitations and the

infrequency of project roll out, this survey serves as small sample of the intended result.

D9858 sample survey shown in **Appendix E**.

Survey Results

All surveys were completed with 100% response rate and the survey results were analyzed by few members of the Information Technology organization. **Figure 2** indicates graphical presentation of the result. D9858 survey result shown in **Appendix F**.

Q1. Would you agree that the ability to configure the test and production environments with any gateways connected to IDEAS server fairly successful?

Q2. Would you agree that the new card on the configuration management system to provide full TL1 command support to support all available network elements?

Q3. Does the configuration management system provide a graphical view of all network elements?

Q4. Does the configuration management system easily allow you to remove a managed object from the circuit database when deleting a circuit using the DLT-CRS command?

Q5. Do alarms from the network element report in fewer then 4 seconds to the user?

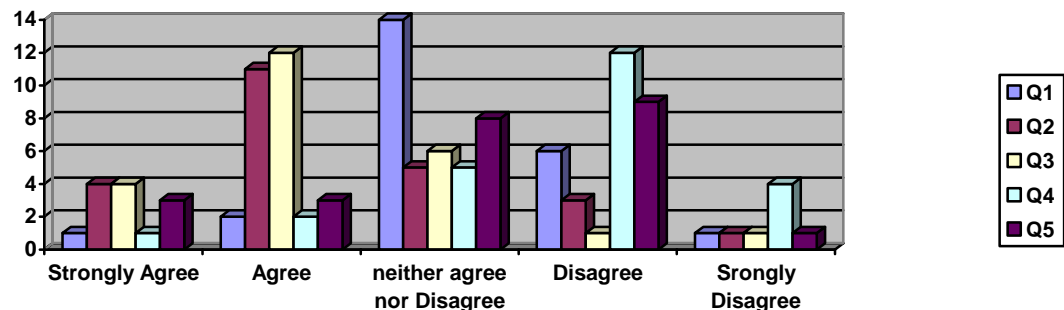


Figure 2

In general, it was found that most employees were either neutral or dissatisfied with the ability to configure an environment and connect to element system server. With respect to the new card and the ability to provide full command support to all available network elements, the majority were in agreement that requirement is working as designed. Five employees were neutral and very few disagreed. Similar outcome was provided towards the third question in terms providing graphical view of all network elements. Participants were also similarly in agreement in terms the ability to remove a managed object from the circuit database and whether alarms report in less than 4 seconds. A good number were neutral but the majority disagreed and expressed their dissatisfaction.

Chapter Five - Conclusion

Organizations rarely suffer from having too little feedback from the people they serve or do business with. However, they often lack an overall system for managing this feedback. As a result, valuable information is isolated in diverse departmental databases or information collection systems. This leads to managers having only a partial view of their customers, which negatively affects both strategic planning efforts and tactical daily decision-making.

In order to fully realize the benefits, convenience and expanding reach of the Internet, IT organizations must ensure that the tools that support their Feedback Survey System program can support and scale to the requirements of the evolving information age. Implementing such a Feedback Survey System will result in reduced feedback collection costs, improve the quality of market intelligence, and enable the corporation to respond quickly to market changes and thus stay competitive.

Recommendation for additional work

Feedback Survey System can be very effective tool but is also very important to adapt the human effect for even more subjective and comprehensive system. IT Managers and throughout their normal day-to-day operations have numerous opportunities to identify strengths and weaknesses of processes, systems or staff. While Survey reviews offer formal process, managers and service matter experts can by far make the greatest impact by searching for defects and doing everything in their power to improve process as well as moral. IT Managers should plan to often spend time each day by observing staff and giving feedback that others appreciate. Perhaps some of the most sensitive feedback managers give to other IT staff and development team will be about their communication

among each others in order eliminate duplicate efforts and wasted resources. The combination of Feedback Survey System process as well as IT management and Service Matter Experts dealing with staff and processes will have the greatest effect towards successful and improved IT organization.

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Appendix A – HTML code gathering survey result

```
<html><head></head>
<body background="bg_g.gif">
<p align="center">
<% FormName=Request.QueryString("FormName")
FrmID=Request.QueryString("FrmID")%>

<%
'FormName="Project22"
set dbConn = Server.CreateObject("ADODB.Connection")
dbConn.Open "DBQ=" & server.MapPath("Mgmt.mdb") & _
";Driver={Microsoft Access Driver (*.mdb)}; dbConn.mode = 3;"

set rsItem1 = server.createobject("adodb.recordset")
rsItem1.open "Select * from [Form_Table] Where ID=" & FrmID & " ", dbConn, 1,3
'===== Select the form
if NOT rsItem1.EOF Then
'do while NOT rsItem1.EOF
FrmID=rsItem1("ID")
FormName=rsItem1("FormName")

'===== Get the count
set rsItem = server.createobject("adodb.recordset")
rsItem.open "Select * from [SurveyFormUsed] WHERE FrmID=" & FrmID & " ", dbConn
if NOT rsItem.EOF Then
Num_Users=rsItem("Num_Users")
End if
rsItem.Close
set rsItem = Nothing
'===== End Get the
count

%>
</p><br><br>
<p align="center"><font color="#FFFF00" face="Tahoma">Results for the </font><b>
<font color="#00FF00" face="Tahoma"><%=FormName%></font></b><font
color="#FFFF00" face="Tahoma"> survey</font><font face="Tahoma">
<br>
</font></font>&nbsp;</p>
<div align="center">
```

--


```

rsItem1.movenext
loop
End if
rsItem1.Close
set rsItem1 = Nothing
%>
</table></div>
<p align="center"><br>
<font face="Tahoma"><font color="#FFFF00">Number of People used this
survey:</font><font color="#00FF00"><b><%=Num_Users%></b></font><font
color="#FFFF00">
<%
dbConn.Close
set dbConn = Nothing
%>
</font><font color="#FFFF00" size="3">
<input type='hidden' name='FrmID' value='<%=FrmID%>'>
<input type='hidden' name='FormName' value='<%=FormName%>'>

</font></font></p>

<p align="center"><font face="Tahoma" color="#00FF00"><a href="Mgmt.asp">
<span style="text-decoration: none"><font
color="#FFFF00">Admin</font></span></a></font></p>

</body>
</html>

```

Appendix B – HTML Reporting code

```
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<title>Management</title>
<%
    set dbConn = Server.CreateObject("ADODB.Connection")
    dbConn.Open "DBQ=" & server.MapPath("Mgmt.mdb") & _
        ";Driver={Microsoft Access Driver (*.mdb)}; dbConn.mode = 3;"
%>

</head>

<body background="bg_g.gif">
<%
'-----
set rsItem0 = server.createobject("adodb.recordset")
rsItem0.open "Select * from [Form_Table] ", dbConn, 1,3 '===== Select the
components
if NOT rsItem0.EOF Then
%>
<div align="center">
<table border="1" width="88%" id="table2">
    <tr>
        <td align="center" width="33" bgcolor="#008080">
            <font face="Tahoma" size="2" color="#FF0000"><a href="FormLayout1.asp">
            <font color="#00FF00"><span style="text-decoration:
none">New</span></font></a></font></td>
            <td align="center" width="33" bgcolor="#CCFFCC">
            <font color="#FF0000" size="2" face="Tahoma">View</font></td>
            <td align="center" width="33" bgcolor="#CCFFCC">
            <font color="#FF0000" size="2" face="Tahoma">Edit</font></td>
            <td align="center" width="43" bgcolor="#CCFFCC">
            <font color="#FF0000" size="2" face="Tahoma">Delete</font></td>
            <td align="center" width="152" bgcolor="#FFFFCC">
            <font color="#FF0000" face="Tahoma" size="2">Form Name</font></td>
            <td align="center" width="106" bgcolor="#FFFFCC">
            <font color="#FF0000" face="Tahoma" size="2">Created By</font></td>
            <td align="center" bgcolor="#FFFFCC">
            <font color="#FF0000" face="Tahoma" size="2">Notes</font></td>
```

```

</tr>
<%do while NOT rsItem0.EOF %>

    <tr>
        <td align="center" width="33">&nbsp;</td>
        <td align="center" width="33" bgcolor="#00FF00"><a
href='FormSurveyResults.asp?FrmId=<%=rsItem0("ID")%>'>
        <font color="#008080" face="Tahoma" size="2">View</font></a></td>
        <td align="center" width="33" bgcolor="#FFFF00"><a
href='Edit.html?FrmId=<%=rsItem0("ID")%>'>
        <font color="#008080" face="Tahoma" size="2">Edit</font></a></td>
        <td align="center" width="43" bgcolor="#FF0000"><a
href='DltSurvey.asp?FrmId=<%=rsItem0("ID")%>'>
        <font color="#008080" face="Tahoma" size="2">Delete</font></a></td>
        <td align="center" width="152"><font face="Tahoma" size="2"><a
href='FormSurvey.asp?FrmId=<%=rsItem0("ID")%>'><%=rsItem0("FormName")%></a
></font></td>
        <td align="center" width="106"><font face="Tahoma"
size="2"><%=rsItem0("CreatedBy")%></font></td>
        <td align="center"><font face="Tahoma"
size="2"><%=rsItem0("Notes_Form")%></font></td>
    </tr>

<%
rsItem0.movenext
loop
%>
</table>
</div>
<%
End if
rsItem0.Close
set rsItem0 = Nothing
%>
<p align="center"><font face="Tahoma" color="#00FF00"><a href="Mgmt.asp">
<span style="text-decoration: none"><font
color="#FFFF00">Admin</font></span></a></font></p>
</body>

```

Appendix C – HTML Easy-Adminstrating code

```
<html>

<head>
<meta http-equiv="Content-Language" content="en-us">
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<title>How many component will your for</title>
</head>
<body style="font-family: Tahoma; font-size: 12pt; text-align:left"
background="bg_g.gif">
<p align="center">&nbsp;</p>
<form method="POST" action="FormLayout2.asp">
<div align="center">
<table border="1" width="86%" id="table2">
  <tr>
    <td align="center" width="244" bgcolor="#FFFFCC"><font
color="#FF0000">Form Name</font></td>
    <td align="center" width="148" bgcolor="#FFFFCC"><font
color="#FF0000">Created By</font></td>
    <td align="center" bgcolor="#FFFFCC"><font
color="#FF0000">Notes</font></td>
  </tr>
  <tr>
    <td align="center" width="244">
      <p align="center"><input type="text" name="FormName" size="34"></td>
    <td align="center" width="148">
      <input type="text" name="CreatedBy" size="17"></td>
    <td align="center"><input type="text" name="NotesForm" size="42"></td>
  </tr>
</table>

<p>&nbsp;</div>

<div align="center">
<table border="0" width="46%" id="table1" cellspacing="6" cellpadding="0">
  <tr>
    <td width="348" colspan="3" bgcolor="#CCFFFF">
      <font color="#FF0000" size="2"><span style="background-color: #CCFFFF">
        Select Type and number of Components to be on this FORM</span></font></td>
```

```

</tr>
<tr>
  <td width="129"><font size="2">Text box<font color="#FF0000">
    -----&gt;&gt;</font></font></td>
  <td width="211" colspan="2"><input type="text" name="T" size="5"></td>
</tr>
<tr>
  <td width="129"><font size="2">Check box <font color="#FF0000">-----
    &gt;&gt;</font></font></td>
  <td width="211" colspan="2"><input type="text" name="C" size="5"></td>
</tr>
<tr>
  <td width="129" valign="top"><font size="2" color="#FF0000">Radio
    -----&gt;&gt;</font></td>
  <td width="29" valign="top"><font size="1" color="#FF0000">
    <span style="background-color: #C0C0C0">Group</span></font><br>
    <font style="font-size: 15pt">1<br>
    2<br>
    3<br>
    4<br>
    5 </font></td>
  <td width="176" valign="top"><font size="1" color="#FF0000">
    <span style="background-color: #FFFF00"># of Radios<font color="#FF0000">
    <input type="text" name="Rsub1" size="4"><br>
    <input type="text" name="Rsub2" size="4"><br>
    <input type="text" name="Rsub3" size="4"><br>
    <input type="text" name="Rsub4" size="4"><br>
    <input type="text" name="Rsub5" size="4"></font></td>
</tr>
<tr>
  <td width="129" valign="top"><font size="2">Drop Down List<font
    color="#FF0000">
    --&gt;&gt;</font></font></td>
  <td width="29" valign="top"><font size="1">
    <span style="background-color: #C0C0C0"><font
    color="#FF0000">List</font></span><br>
    <font style="font-size: 15pt">1<br>
    2<br>
    3<br>
    4<br>
    5 </font></td>
  <td width="176" valign="top"><span style="background-color: #FFFF00">
    <font size="1" color="#FF0000">Lines / List</font></span><font size="1"
    color="#FF0000"><br>
    </font><font face="Tahoma" size="1">

```

```

        <input type="text" name="Dsub1" size="4"><br>
        <input type="text" name="Dsub2" size="4"><br>
        <input type="text" name="Dsub3" size="4"><br>
        <input type="text" name="Dsub4" size="4"><br>
        <input type="text" name="Dsub5" size="4"></font></td>
    </tr>
    <tr>
        <td width="129"><font size="2">Text Area&nbsp;  <font color="#FF0000">
        -----&gt;&gt;</font></font></td>
        <td width="211" colspan="2"><input type="text" name="S" size="5"></td>
    </tr>
    <tr>
        <td align="center" colspan="3"><input type="submit" value="Submit"
name="B1"><input type="reset" value="Reset" name="B2"></td>
    </tr>
</table>
</div>
</form>
<p align="center">&nbsp;</p>
</body>
<%
dbConn.Close
set dbConn = Nothing
%>
</html>

```

Appendix D - Meeting Minutes

Meeting Minutes (1)

Team: Network Operations Date: March 10th
 Project: D9707 Time: 10 AM
 Place: 6480 XXX Pkwy 2A600

Team Leader: Akram Dalaq	Meeting Facilitator:	
Team Members and Other attendees: Hany Fanous	Title	
Mike Austin	Network Purchasing team lead	
Aaron Dye	Network Services Manager	
Brian Carter	Network Operations team lead	

Time:	Agenda Topics:	Person Providing Information
	Review Action Items	
10:00	Introduction of the purpose of the meetings	Akram Dalaq
10:05	Open Dialogue Questions – Answers	
	Q: What is most important to you? A: On time code delivery, warranty and support as needed	Q – Akram A - Brian
	Q: What type of problems you would like avoid A: We would like to be get our issues worked on in timely manner and to be given priority in terms of support	Q – Hany A - Brian
	Q: How convenient it is to get in touch with the IT team of the vendors you currently deal with today if you have issues A: It is kind of structure process, they both have online ticketing system with Average of 5 days SLA (Service Level Agreement)	Q – Akram A - Brian
	Q: I understand that getting some of the projects done through our group has helped you meet you goals for project delivery. How do you rate our	Q – Hany A - Brian

	<p>performance?</p> <p>A: It has been good but with some issues. Several issues with the code and delays in fixing these issues. Using the ticketing system as we have 5 days SLA, but sometimes you take longer depending on the issue.</p> <p>these delays impact our ability to move forward which impacting the bottom line and our services by slowing down the process of upgrading switches to reduce drop calls and improve services</p>	
10:30	<p>Items for Next Agenda</p> <ul style="list-style-type: none"> • Issues being worked in timely manner • Tickets past SLA • Code delivered include many issues 	
	<p>Evaluate Meeting</p> <p>All positive with goal to improve company services</p>	

Meeting Minutes (2)

Team: Development Team Date: March 13th
 Project: NetExpert/NetCool Time: 9 AM
 Place: 6220 XXX 1C423

Team Leader: Akram Dalaq	Meeting Facilitator:	
Team Members and Other attendees: Hany Fanous	Title	
Darin Reid	Supervisor System Development	
Cora Papa	Senior Developer - SME	
Kamran Kasra	Developer III	

Time:	Agenda Topics: Process improvement	Akram Dalaq
	<p>Review Action Items</p> <ul style="list-style-type: none"> • Discuss code delivery delays • Discuss tickets resolution delays • Discuss reasons code delivered to customer with issues and possible ways to minimize or eliminate these issues. 	
10:00	Introduction of the purpose of the meetings:	Hany Fanous

	Explained to the development team that a meeting took place with our main customer (Network Operations) to try find out reasons projects have been granted to outside vendor vs. our IT. During the meeting it was obvious they have been experiencing some issues and to try to figure out ways to reduce or eliminate these issues may result in re-gain their confidence and increasing the number of projects	
10:05	Open Dialogue Questions – Answers	
	<p>Q: What are the reason behind the delay to some of these project delivered in 2007?</p> <p>A: There has been several instances the development and test environments were not ready for us to start coding, therefore sometimes we had to rush and deliver the code and other times we were unable to get the code ready on time for the customer to perform their testing.</p>	<p>Q – Akram A - Cora</p>
	<p>Q: So do you think not having the environment build-out on time may have impact to the number of issues experienced by the customer?</p> <p>A: Absolutely, not have the environment ready on time put our whole team under time crunch to meet the deadline to deploy the code during the scheduled release.</p>	<p>Q – Akram A - Cora</p>
	<p>Q: There are many incidents tickets have been resolved passed normal SLA. How do you think we can tackle this issue</p> <p>A: There are quite few reasons why tickets are resolved outside the usual SLA window. We can partially blame it on the environment build out which put the whole team under time constraints, we also have some internal coverage issues, such as people are out on vacation/sick or job</p>	<p>Q – Hany A – Kamran</p>
	<p>Q: What plans do we have to address this issue?</p> <p>A: We are aggressively looking into filling these jobs opening by advertising in other states. We will look into bettering managing vacations to provide better coverage.</p>	<p>Q – Hany A - Darin</p>
10:30	<p>Items for Next Agenda</p> <ul style="list-style-type: none"> • Find out reason behind environment issues • Follow up on SLA issues • Meeting with the Configuration 	

	Management team and result	
	Evaluate Meeting Good meeting and open communications. The development team suggested that there might be other external factors such as delays in equipment installations.	

Appendix E – D9858 Sample Survey

http://24.123.111.211/MgmtFeedback/FormSurvey.asp?FrmId=86 - Microsoft Internet Explorer provided by Sprint Nextel

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites

Address http://24.123.111.211/MgmtFeedback/FormSurvey.asp?FrmId=86

Web Search Bookmarks Settings Groups Mail News My Yahoo! Flickr Maps

Improve your management Survey your Work

Poor Satisfactory Good Excellent ☒

please fill out the D9858 Project survey

Would you agree that the ability to configure the test and production environments with any gateways connected to IDEAS server fairly successful?

☐ Strongly Agree
☐ Agree
☐ neither agree nor Disagree
☐ Disagree
☐ Strongly Disagree

Would you agree that the new card on the configuration management system to provide full T1.1 command support to support all available network elements?

☐ Strongly Agree
☐ Agree
☐ neither agree nor Disagree

Done

Start | Inbox - Microso... | 3 Internet E... | BMGT 835 | Feedback Surve... | 10:30 AM

http://24.123.111.211/MgmtFeedBack/FormSurvey.asp?FrmId=86 - Microsoft Internet Explorer provided by Sprint Nextel

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites

Address http://24.123.111.211/MgmtFeedBack/FormSurvey.asp?FrmId=86

Web Search Bookmarks Settings Groups Mail News My Yahoo! Flickr Maps

☐ Strongly Agree
☐ Agree
☐ neither agree nor Disagree
☐ Disagree
☐ Strongly Disagree

Does the configuration management system provide a graphical view of all network elements?

☐ Strongly Agree
☐ Agree
☐ neither agree nor Disagree
☐ Disagree
☐ Strongly Disagree

Does the configuration management system easily allow you to remove a managed object from the circuit database when deleting a circuit using the DLT-CRS command?

☐ Strongly Agree
☐ Agree
☐ neither agree nor Disagree
☐ Disagree
☐ Strongly Disagree

Do alarms from the network element report in fewer than 4 seconds to the user?

☒ Strongly Agree
☐ Agree
☐ neither agree nor Disagree
☐ Disagree
☐ Strongly Disagree

☐ Disagree
☐ Strongly Disagree

Does the configuration management system easily allow you to remove a managed object from the circuit database when deleting a circuit using the DLT-CRS command?

☐ Strongly Agree
☐ Agree
☐ neither agree nor Disagree
☐ Disagree
☐ Strongly Disagree

Do alarms from the network element report in fewer than 4 seconds to the user?

☒ Strongly Agree
☐ Agree
☐ neither agree nor Disagree
☐ Disagree
☐ Strongly Disagree

What shift do you work?

1st Shift

What is your location

Kansas City

Save My Survey

Done

Start Inbox - Micro... 3 Internet E... EMGT 835 2 Microsoft Of... 10:30 AM

http://24.123.111.211/MgmtFeedBack/FormSurvey.asp?FrmId=86 - Microsoft Internet Explorer provided by Sprint Nextel

File Edit View Favorites Tools Help

Back Forward Stop Search Favorites

Address http://24.123.111.211/MgmtFeedBack/FormSurvey.asp?FrmId=86

Web Search Bookmarks Settings Groups Mail News My Yahoo! Flickr Maps

Appendix F – D9858 Survey Result

